Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously presented) A method for acquiring electromagnetic signals received from at least one part of a body placed in a system comprising means for generating a magnetic induction B_0, said magnetic induction comprising gradients in certain directions in space, means for transmitting radio frequency wave pulse sequences perpendicular to the magnetic induction B_0 in a range of adjustable frequencies, and means for detecting electromagnetic signals received from said body part, the method comprising the following steps:

a) injecting, into said body part, an amount of contrast product capable of being temporarily fixed in or of passing through an observed zone of said body part, said contrast product comprising at least one element capable of causing a chemical shift of a resonance frequency of water hydrogen protons;

b) determining a new resonance frequency, shifted with respect to the Larmor frequency (v_0) for the water hydrogen protons nearby the contrast product;

c) exciting said body part by means of a radio frequency wave pulse sequence in a range of frequencies adjusted according to the magnetic induction B_0 and to the new resonance frequency determined at step b) for at least some of said radio frequency waves;

d) detecting, coherently with the excitation of step c), electromagnetic signals received from said body part, said signals corresponding substantially to magnetic resonance signals of the protons of the observed zone having undergone the chemical shift.

2. (Original) The method as claimed in claim 1, in which the element capable of causing a chemical shift and included in the contrast product comprises a lanthanide.

3. (Original) The method as claimed in claim 2, in which the lanthanide is chosen from at least one of dysprosium, praseodymium and europium.

4. (Previously presented) The method as claimed in claim 1, in which the contrast product also comprises a cage that incorporates the element capable of causing a chemical shift, such as DOTA or DTPA.

5. (Currently amended) The method as claimed in claim 1, also comprising a step consisting ~~in~~ of forming an image from the electromagnetic signals received from said body part that are detected, according to a spatial coding dependent on the gradients of said magnetic induction.

6. (Cancelled)

7. (Previously presented) The method as claimed in claim 1, in which said observed zone comprises a group of blood vessels.

8. (Previously presented) The method as claimed in claim 1, in which the contrast product is injected with a targeting molecule capable of being fixed to at least one target that is part of the observed zone.

9. (Original) The method as claimed in claim 8, in which the target is a group of cells expressing a gene of said body part.

10. (Cancelled)

11. (Currently amended) The method as claimed in ~~claim 10~~ claim 1, in which the observed zone comprises a tumor zone of said body part and in which an indication of the

concentration of contrast product fixed in or passing through the tumor zone is deduced from the resonance frequency of the protons of the observed zone having undergone the chemical shift, this indication being a vascularization index for said tumor zone.

12-15. (Cancelled)

16. (Previously presented) A method for acquiring electromagnetic signals received from at least one part of a body placed in a system comprising means for generating a magnetic induction B_0, said magnetic induction comprising gradients in certain directions in space, means for transmitting radio frequency wave pulse sequences perpendicular to the magnetic induction B_0 in a range of adjustable frequencies, and means for detecting electromagnetic signals received from said body part, the method comprising the following steps:

a) injecting, into said body part, an amount of contrast product capable of being temporarily fixed in or of passing through an observed zone of said body part, said contrast product comprising at least one element capable of causing a chemical shift of a resonance frequency of water hydrogen protons;

b) exciting said body part by means of a first radio frequency wave pulse sequence in a range of frequencies adjusted to a frequency corresponding substantially to the Larmor frequency for the water protons not chemically shifted with a duration able to saturate the protons concerned, so as to these protons no longer transmit any significant magnetic resonance signal at the end of the first radio frequency wave pulse sequence;

c) exciting said body part by means of a second radio frequency wave pulse sequence that are relatively nonselective in terms of frequency;

d) detecting, coherently with the excitation of step c), electromagnetic signals received from said body part, said signals corresponding substantially to magnetic resonance signals of the protons of the observed zone having undergone the chemical shift.

17. (Previously presented) The method as claimed in claim 1, wherein the shift between the new resonance frequency and the Larmor frequency is proportional to the concentration of the contrast product.

18. (Previously presented) The method as claimed in claim 17, wherein the shift between the new resonance frequency and the Larmor frequency is obtained by the following relationship:

$$v_1 - v_0 = C \times 10^{-6} \times v_0$$

wherein v_1 is the new resonance frequency, v_0 is the Larmor frequency, and C is the concentration in parts per million (ppm).

19. (Previously presented) The method as claimed in claim 1, wherein the determining step comprises subjecting said body part to successive waves in a broad spectrum of radiofrequencies; detecting the magnetic resonance signals generated by the body part in reaction of each of these waves; and determining the main frequency that causes the protons of the observed zone having undergone the chemical shift to come into resonance.